

Review Topic: Landslides

Comment Letter Number	67	
Submitted by	Wild Salmon Center, Northwest Guides and Anglers Association, Oregon Chapter of the Sierra Club, Pacific Rivers Council, private citizen	
Signatories	Ex. 6 - Personal Privacy	
Date	3/20/2014	
Coded Public Comment	Coded comment in RED. Sub-comments in BLUE.	Information Source/Citation
67-D	Observed sediment loads from forest roads and landslides	
	We are aware of many landslides, which often initiate at roads or start in clear cuts on steep ground	
67-E	Additional MMs needed for forestry such as what is described on pg. 7-12 of proposed findings.	
	Need more measures to prevent landslides caused by harvest on steep slopes	
	ODF has analyzed potential landslide locations in relation to public safety on the Tillamook State Forest (and required operational restrictions). Similar operational restrictions should be extended to steep slopes likely to affect streams in other areas	
67-F	Used Salmonberry River in north Coast range as prime example of impacts.	
	Numerous clearcuts on steep ground were source of landslides. Note that Salmonberry is designated as salmon anchor habitat	
	On-the-ground surveys and Google Earth confirm landslides initiating in recent harvests contributed to stream damage (loss of riparian; channel simplification; scouring to bedrock; alluvial deposits that isolate habitat segments)	On-the-ground surveys and Google Earth; Personal observations of Ian Fergusson
	Kinney Creek Landslide in recent harvest (trib to Salmonberry)	Google Earth
	Kinney Creek Landslide in recent clearcut (trib to Salmonberry)	Google Earth
	Steep slopes and landslides in many recent clearcuts likely demonstrate patterns found by Montgomery et al. (2010) and Tucker et al. (2010) and noted in the EPA/NOAA Proposed Finding (i.e. significant increases in landslide rates after clear-cutting compared to unmanaged forests in the Pacific Northwest)	Montgomery, D.R., K.M. Schmidt, H.M. Greenberg, and W.E. Dietrich. "Forest clearing and regional landsliding," <i>Geology</i> , 28.4 (2010): 311-314. Turner, T.R., S.D. Duke, B.R. Frabsen, M.L. Reiter, A.J. Kroll, J.W. Ward, J.L. Bach, T.E. Justice, and R.E. Bilby. "Landslide

		densities associated with rainfall, stand age, and topography on forested landscapes, southwestern Washington, USA," <i>Forest Ecology and Management</i> , 259.12 (2010): 2233-2247. ¹
	Natural disturbance can rejuvenate coastal river systems, however the frequency of disturbances, along with their concentration in (the Salmonberry watershed) appear to have increased due to logging. Net effects are detrimental to water and habitat quality.	

Review Topic: Roads

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67-D	Observed sediment loads from forest roads and landslides	
	Many observations of northern Coast Range forest roads that are contributing sediment to streams	
67-E	Additional MMs needed for forestry such as what is described on pg. 7-12 of proposed findings.	
	Need more measures to protect against roads, including so-called legacy roads.	
67-F	Used Salmonberry River in north Coast range as prime example of impacts.	
	On the ground surveys and Google Earth confirm failures on forest roads	On-the-ground surveys and Google Earth
	Road failures on Bathtub Creek apparently initiated a debris flow that ran unchecked for two miles until junction w/ Salmonberry. Formed debris dam that later burst, damaging streambed, railroad, and bridge	Personal Observation of Ian Fergusson

¹ Note that in letter 67 the commenters refer to the EPA/NOAA Proposed Finding – however they misspelled one of the references. It should be Turner et al. (not Tucker et. al)

	Loss of spawning habitat and reduction in redd density in the mainstem Salmonberry (from 25.6/mile to 6.4/mile) due to bursting of the debris dam and resultant flood.	Summary of spawning survey data from ODFW Data Clearinghouse ² :
	Deleterious long term impacts may result from increased deposition of fine materials from the scoured banks, landslides and debris avalanches into the stream	ODF Aquatic Inventory Project Stream Report, Salmonberry River, Cover Letter, 2008
	Summer stream temperatures can be affected by debris torrents (implication is that road-related landslides and debris torrents can result in stream warming). References results from Wolf and Kinney Creeks	Effects of Debris Torrents on Summer Water Temperatures: Salmonberry (Nehalem Basin) Oregon, July 2011 by Ian Fergusson. ³
	Lower main stem Salmonberry temps exceed core cold salmonid habitat (implication is increased sediment loads from road failures etc result in increased temperatures)	Analysis of temperature data by Ian Fergusson
	Culvert related washouts on upper Wolf Creek, Salmonberry Watershed	Google Earth
	Road-related landslide in Ripple Creek drainage, Salmonberry Watershed	Google Earth
	Wolf creek road failure, Salmonberry Watershed	Google Earth
	Upper Wolf Creek road failure, Salmonberry Watershed	Google Earth
	Oregon FPA inadequate to ensure that logging roads would survive winter storms	

Review Topic: Riparian Buffers

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67-E	Additional MMs needed for forestry such as what is described on pg. 7-12 of proposed findings.	
	Need more measures to buffer streams (especially small and medium fish streams and	

² https://nrimp.dfw.state.or.us/web%20stores/data%20libraries/files/ODFW/ODFW_941_1_Salmonberry%20STEP%20Spawning%20Survey%20Data.xls

³ https://nrimp.dfw.state.or.us/web%20stores/data%20libraries/files/ODFW/ODFW_943_2_Effects%20of%20Debris%20Torrents%20on%20Summer%20Water%20Temperatures.%20Salmonberry%20River.pdf

	non-fish streams)	
67-D	State's own Ripstream study note inadequacy of buffers to control temperature and other WQ impacts	
	Current Forest Practices Act buffers are not adequate to prevent significant stream warming	
	Narrow Stream buffer along Kinney Creek (where landslide reached stream)	Google Earth

Review Topic: Landslides

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Submitted by	Oregon Wild	
Signatories	Ex. 6 - Personal Privacy	
Date	3/20/2014	
Coded Public Comment	Coded comment in RED. Sub-comments in BLUE.	Information Source/Citation
58-B	Climate Change Preparation/Mitigation, and Ocean Acidification: Need to prepare for climate change by putting programs in place to prevent harm to water quality and make watersheds more resilient to large storms, by requiring wider stream buffers for forestry and agriculture operations, larger fish-friendly culverts that pass more water from larger storms, improved road drainage, road drainage disconnected from streams, removal of valley bottom and mid-slope roads that intercept the downslope movement of beneficial wood and sediment, reduced road density especially in steep terrain, and better protection for unstable slopes.	
	Under climate change jet stream changes may mean that storms will move more slowly over coastal zone – dropping more precipitation per storm event (exacerbating potential for landslides and road failures)	
58-E	Focus on forest issues have been on shade/sediment. Also need large woody debris.	
	Large wood is recruited from a large area adjacent to streams and upslope, including unstable areas that move downslope toward streams (implication is that harvest on unstable slopes will result in lack of delivery of large wood to streams)	
	Logging near streams and on unstable slopes deprives streams of the essential functions provided by dead wood	
58-H	Cites numerous studies about inadequacy of OFPA and how it's worse than federal and neighboring states.	
	White paper analyzing the proposed O&C Trust, Conservation and Jobs Act provides	Oregon Wild 2012. "Problems and

	ample evidence supporting the need for more stringent programs to protect water quality in Oreogn's coastal zone	Pitfalls with the Proposed O&C Trust, Conservation, and Jobs Act" ⁴
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	Under climate change jet stream changes may mean that storms will move more slowly over coastal zone – dropping more precipitation per storm event (exacerbating potential for landslides and road failures)	
58-H	Cites numerous studies about inadequacy of OFPA and how it's worse than federal and neighboring states.	
	We urge EPA to carefully review the following additional sources to fully appreciate the water quality impacts of industrial forestry and associated road impacts in coastal watersheds (list of citations is captured under Riparian review topic)	

Review Topic: Riparian

⁴ http://www.oregonwild.org/oregon_forests/old_growth_protection/westside-forests/western-oregon-s-patchwork-public-lands/O-C_Trust_Act_White_Paper_FINAL_6-5-2012_w_DeFazio_response.pdf

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58-B	Climate Change Preparation/Mitigation, and Ocean Acidification: Need to prepare for climate change by putting programs in place to prevent harm to water quality and make watersheds more resilient to large storms, by requiring wider stream buffers for forestry and agriculture operations, larger fish-friendly culverts that pass more water from larger storms, improved road drainage, road drainage disconnected from streams, removal of valley bottom and mid-slope roads that intercept the downslope movement of beneficial wood and sediment, reduced road density especially in steep terrain, and better protection for unstable slopes.	
	Larger stream buffers would store additional carbon and reduce GHG emissions	
58-D	Oregon has approved several TMDLs in the Coast Range but the assumptions underlying those TMDLs are about to be undermined by efforts to reduce stream protection on federal forest lands. All of the alternatives proposed by BLM for the revision of its Resource Management Plans in western Oregon call for significant narrowing of stream buffers, and none of the action alternatives maintain the current buffers.	http://www.blm.gov/or/plans/rmpswesternoregon/files/alternfaq.pdf
58-D (part 2)	The TMDLs approved by the state allow more logging on non-federal lands, under the assumption that there logging near streams on federal lands would be strictly limited. Now it turns out that there will likely be more logging near streams on federal lands, so there needs to be a corresponding decrease in logging near streams on non-federal lands in order to avoid exceeding the watershed scale waste load identified in the TMDLs.	Reeves et al. 2013 ⁵ ; Heiken, D. 2013 ⁶
58-E	Focus on forest issues have been on shade/sediment. Also need large woody debris.	
	Large wood is recruited from a large area adjacent to streams and upslope, including unstable areas that move downslope toward streams (implication is that harvest in	

⁵ Reeves, G.H., Pickard, B.R., and K.N. Johnson 2013. Alternative Riparian Buffer Strategies for Matrix Lands of BLM Western Oregon Forests That Maintain Aquatic Ecosystem Values. REVIEW DRAFT. January 23, 2013, <http://fes.forestry.oregonstate.edu/sites/fes.forestry.oregonstate.edu/files/PDFs/Riparian%20paper%20Jan%2023.pdf>

⁶ Heiken, D. 2013. Riparian Reserves Provide Both Aquatic & Terrestrial Benefits - A Critical Review of Reeves, Pickard & Johnson (2013). <https://dl.dropboxusercontent.com/u/47741/Heiken%202013.%20Review%20of%20Reeves%20et%20al%20Riparian%20Proposal.pdf>

	riparian areas will result in lack of delivery of large wood to streams)	
	Riparian corridors have been substantially degraded across large portions of the landscape. Restoration and maintenance of productive aquatic habitat is not a common stated objective of State programs that influence the management and use of riparian areas	OREGON STATE PROGRAMS FOR MANAGING RIPARIAN RESOURCES REPORT BY THE RIPARIAN MANAGEMENT WORK GROUP, October 2000. http://www.oregon.gov/OPSW/archives/riparian/4-0.pdf
	Abundant large wood is essential to maintain biological and hydrological processes in streams (sediment retention and transport; habitat formation; substrate for biological activity). Woody debris comes directly from adjacent riparian area, from tributaries that may not be inhabited by fish, and from hillslopes	1994 Northwest Forest Plan FEIS, page 3&4-61
	Large wood is not just needed instream but also adjacent to the stream. Conifer basal area is less in second growth forests. Riparian restoration will depend on regeneration rates of conifers in the future. Regeneration is dependent in part on downed large trees. The role of nurse trees in forest regeneration is widely recognize	Harmon et al. 1986. Note – full citation not provided
	Greater retention of live trees and snags in riparian stands and adjacent upslope source areas will enhance the generation of future riparian forests	1993 Scientific Analysis Team (SAT) Report, page 460.
58-H	Cites numerous studies about inadequacy of OFPA and how it's worse than federal and neighboring states.	
	White paper analyzing the proposed O&C Trust, Conservation and Jobs Act provides ample evidence supporting the need for more stringent programs to protect water quality in Oreogn's coastal zone	Oregon Wild 2012. "Problems and Pitfalls with the Proposed O&C Trust, Conservation, and Jobs Act" ⁷
	Since streams form a linked network, water quality and stream health is closely associated with the intensity and cumulative extent of forest management activities near streams of all sizes, in all parts of the network. Approximatley 55% of the 27,000 stream miles examined in Oregon are either severely or moderately impacted by nonpoint source pollution	https://mail.google.com/mail/u/0/%23144e028685220542_144dd82d79074614_144dbb15dc6ff75f_ftn1 Note: link broken
	The OFPA and similarly intensive forest practices have been widely criticized for failing to protect water quality and salmonid habitat (failures relate to shade, large wood, tributary protection, unstable slopes, and road system impacts)	https://mail.google.com/mail/u/0/%23144e028685220542_144dd82d79074614_144dbb15dc6ff75f_ftn5 Note: link broken
	94 percent of riparian areas on non-federal land are ranked as poor with regard to the presence of large conifers	Independent Multidisciplinary Science Team. 1999. Recovery of Wild

⁷ http://www.oregonwild.org/oregon_forests/old_growth_protection/westside-forests/western-oregon-s-patchwork-public-lands/O-C_Trust_Act_White_Paper_FINAL_6-5-2012_w_DeFazio_response.pdf

		Salmonids in Western Oregon Forests: Oregon Forest Practices Act Rules and the Measures in the Oregon Plan for Salmon and Watersheds. Technical Report 1999-1 to the Oregon Plan for Salmon and Watersheds, Governor's Natural Resources Office, Salem, Oregon; http://www.fsl.orst.edu/imst/reports/forestry.html
	Under current management, there are lower levels of large wood than occurred historically, and the potential for recruitment will not result in its replenishment	https://mail.google.com/mail/u/0/%23144e028685220542_144dd82d79074614_144dbb15dc6ff75f_ftn9 Note: link broken
	<p>We urge EPA to carefully review the following additional sources to fully appreciate the water quality impacts of industrial forestry and associated road impacts in coastal watersheds</p> <ul style="list-style-type: none"> • Draft Report of the Forest Practices Committee on Salmon and Watershed. August 2000.⁸ • NMFS Position Paper of Oregon Forest Practices⁹ • Independent Multidisciplinary Science Team. 1999. Recovery of Wild Salmonids in Western Oregon Forests: Oregon Forest Practices Act Rules and the Measures in the Oregon Plan for Salmon and Watersheds. Technical Report 1999-1 to the Oregon Plan for Salmon and Watersheds, Governor's Natural Resources Office, Salem, Oregon¹⁰ • National Marine Fisheries Service 1998. A Draft Proposal Concerning Oregon Forest Practices¹¹ • National Marine Fisheries Service 1996. Position Paper on the Oregon Forest Practices Act¹² 	Links provided in footnotes

⁸ <http://web.archive.org/web/20050210221951/http://159.121.125.11/FP/FPAC/TOC.htm>

⁹ http://web.archive.org/web/20090211024048/http://umpqua-watersheds.org/local/nmfs_on_ofpa.html

¹⁰ <http://www.fsl.orst.edu/imst/reports/forestry.html>

¹¹ http://www.coastrange.org/documents/NMFS_FP_pdf.pdf

¹² http://web.archive.org/web/20090211024048/http://umpqua-watersheds.org/local/nmfs_on_ofpa.html

	<ul style="list-style-type: none"> • Buchanan, J.B. 2005. Challenges of Avian Conservation on Non-Federal Forests in the Pacific Northwest. USDA Forest Service Gen. Tech. Rep. PSW-GTR-191. 2005.¹³ • Stout, H.A., P.W. Lawson, D. Bottom, T. Cooney, M. Ford, C. Jordan, R. Kope, L. Kruzic, G. Pess, G. Reeves, M. Scheuerell, T. Wainwright, R. Waples, L. Weitkamp, J. Williams, and T. Williams. 2011. Scientific conclusions of the status review for Oregon Coast coho salmon (<i>Oncorhynchus kisutch</i>). Draft revised report of the Oregon Coast Coho Salmon Biological Review Team. NOAA/NMFS/NWFSC, Seattle, WA.¹⁴ • FEMAT Chapter V - Aquatic Ecosystem Assessment, pp V-12 - V-29 • "Cumulative Effects of Forest Practices..." by Beschta et al.¹⁵ • WA DNR Forest Practices HCP EIS¹⁶ 	
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¹³ http://www.fs.fed.us/psw/publications/documents/psw_gtr191/psw_gtr191_0419-0428_buchanan.pdf

¹⁴ http://www.nwr.noaa.gov/publications/status_reviews/salmon_steelhead/coho/occ-review-2011.pdf.

¹⁵ <http://www.forestry.oregonstate.edu/cof/fr/facultypages/CumulativeEffectsofForestPractices.pdf>

¹⁶ http://www.dnr.wa.gov/BusinessPermits/Topics/ForestPracticesRules/Pages/fp_rules_eis.aspx and http://www.dnr.wa.gov/BusinessPermits/Topics/ForestPracticesHCP/Pages/fp_hcp_feis.aspx